



Marine Renewables Canada

Annual Report 2015



marine
renewables
canada

The power to think bigger.

marinerenewables.ca

Who we are



BOARD OF DIRECTORS

Graham Curren, JD Irving Limited,
Chair

Melanie Nadeau, Emera, *Vice Chair*

Dana Morin, Fundy Tidal Inc.
Treasurer

Don Bryan, MacArtney

Shelley MacDougall, Acadia
University

Jessica McIlroy, BC Women in Energy
Network

Scot Merriam, SRM Projects

Russell Stothers, Clean Current
Power Systems

Fabian Wolk, Rockland Scientific Inc.

TEAM

Elisa Obermann, Executive Director

Amanda White, Operations Director

Chris Campbell, Strategic Advisor

Marine Renewables Canada is the country's lead wave, tidal, and hydrokinetic energy association representing technology and project developers, utilities, researchers, and the energy and marine supply chain.

Since 2004, Marine Renewables Canada has worked to advance the development of the marine renewable energy industry by identifying and fostering collaborative opportunities, providing information and outreach, and representing the best interests of the sector. Canada has the resources, the skills, and the leadership to ensure our marine renewable energy industry is globally competitive and part of the world's sustainable energy solution. We have the power to think bigger.

Our Vision

A Canadian sustainable marine renewable energy sector, serving domestic and export power needs and providing projects, technologies and expertise in a global market.

Our Mission & Objectives

Marine Renewables Canada aligns industry, academia and government to ensure that Canada is a leader in providing marine renewable energy solutions to a world market. To accomplish this mission, our association works to:

- Promote development of Canadian marine renewable energy industry that will benefit generations of Canadians.
- Foster communication and collaboration between members, industry, academia, government, and the public.
- Create a focus on innovation opportunities that can result in technology, techniques and services for world markets.
- Develop competitive intelligence and appropriate strategic relationships.
- Provide education, outreach, engagement and an understanding of marine renewable energy activities and the economic, environmental, and social benefits they present.
- Support members and industry by increasing exposure for Canadian companies in the world market and identifying business development opportunities.

Leadership Message



Over the last year, the Canadian marine renewable energy sector has accomplished some significant milestones, making its mark as one of the leading nations in wave, tidal, and river current energy development. In late 2014, Marine Renewables Canada hosted the 5th International Conference on Ocean Energy (ICOE) in Halifax, Nova Scotia. This was the first time the event was held outside of Europe and it attracted over 750 participants. The Fundy Ocean Research Center for Energy (FORCE) was successful in deploying 11 kilometers of subsea cable providing 64 MW in transmission capacity, the largest of any tidal site in the world. The world's leading tidal energy project and device developers are investing in Canada, establishing partnerships with local businesses, and laying down roots with new offices. Foundational activities at the West Coast Wave Initiative and the Canadian Hydrokinetic Turbine Center are continuing to pave the way for future development of wave and river current energy. Our member companies are making progress in developing their respective technologies, finding innovative solutions, and building international partnerships and business opportunities. Given the size and state of the sector at this early stage, what has been accomplished is impressive.

Clearly the strategy that's being followed, particularly in Nova Scotia, has helped to establish Canada as a leader in the international industry. The strategy has successfully aligned resource opportunity, utility and government interest, electricity market drivers, international project developer engagement and recruitment of the leading technology suppliers as the unique basis for a path to industrial scale. The association will continue to work with members and government to ensure that this strategy is sustained and built upon.

Beyond the Bay of Fundy, we have many strengths and opportunities that can grow this sector and contribute to Canada's future clean energy economy. Wave, tidal, and river pose opportunities across the country and many of our members are working very hard to realize those opportunities, but lack of policy support in some regions has made this challenging. As we embark on a new year, we must think about how we establish a strategy for wave and river current energy and other regions of the country like we have seen for tidal energy in Nova Scotia.

We have a diverse and impressive membership – with businesses and organizations from across Canada and internationally, years of experience in marine and energy sectors, as well as startup companies and companies bringing years of tradition. In this we have the benefit of creativity and strength. We have accomplished a lot and persevered even in times and places that have been challenging. Now is the time to come together and continue to advance the strategy we've been pursuing. As the tides change with a new federal government, we hope to continue working with you on new opportunities for this sector that will help build this new industry for Canada.

Graham Curren
Chair

Elisa Obermann
Executive Director



Industry Progress & Updates

Project and Technology Development

Tidal Energy

Tidal energy projects continue to progress on both the east and west coasts, with the Bay of Fundy tidal projects creating a true incubator for the emergence of Canada's industry.

The Fundy Ocean Research Center (FORCE) continues to be a catalyst for the industry. A major milestone was reached at the end of 2014 when FORCE installed four underwater power cables with a total capacity of 64 MW, giving it the largest transmission capacity for any tidal site in the world.

In 2015, FORCE began a 20 MW onshore electrical upgrade and has completed construction of the underwater monitoring platform for the Fundy Advanced Sensor Technology (FAST) platform program. FAST responds to an emerging global need to identify and validate suitable tidal sites as well as monitor the environmental conditions at existing sites, which requires the technology and methods to gather data under the extreme conditions of high flow tidal races. FORCE is also designing a new Environmental Effects Monitoring (EEM) program to track effects of turbines on the environment.

After receiving approval through Nova Scotia's developmental feed-in tariff (FIT) program for a total of 17.5 MW of electricity, developers at FORCE continue to forge ahead with plans for Canada's first multi-device projects:

- Minas Energy, 4 MW
- Black Rock Tidal Power, 5 MW
- Atlantis Operations Canada, 4.5 MW
- Cape Sharp Tidal Venture, 4 MW



Cable lay at FORCE



Interest in the site continues to grow with DP Energy partnering with Atlantis Resources, joining the other three FORCE berth holders. These projects are beginning to draw in more local supply chain companies and researchers. Local activity created and stimulated by these projects includes:

- The installation of the FORCE subsea cables engaged over 25 personnel, with Antigonish-based R.J. MacIsaac Construction acting as lead contractor for marine and onshore activity.
- In late 2014, FORCE berth holder, OpenHydro formed a new joint venture business with Emera – Cape Sharp Tidal which is aiming to deploy a full grid connected 4 MW tidal array in the Bay of Fundy in late 2015. The project has the potential to be one of the world’s first multi-megawatt arrays of interconnected tidal turbines, providing energy to over 1,000 customers in Nova Scotia.
- Cape Sharp Tidal has contracted local suppliers – Aecon, Lengkeek Vessel Engineering, and Hawboldt Industries – for the welding, testing, painting and assembling components for one of two open-centre tidal turbines and a large barge for deployment. It has also contracted Atlantic Towing Limited to provide marine tug and barge services.

Fundy Tidal Inc. is also making progress on its projects in the Bay of Fundy. In late 2014, Fundy Tidal partnered with International Marine Energy and Tribute Resources to develop its community-based feed-in tariff (COMFIT) sites in the Bay of Fundy and collaborate on future projects in Atlantic Canada.

Currently, Fundy Tidal is progressing through the Nova Scotia Power interconnection process for the Digby Gut project and is working towards financial close for all projects. Fundy Tidal has also been working in collaboration with Acadia, Dalhousie, and Dynamic Systems Analysis (DSA) on a Natural Resources Canada ecoEII funded project focused on reduce the cost of tidal energy generation through comprehensive hydrodynamic site assessment techniques.

Strategic research and tools continue to be developed that contribute to risk reduction and informed decision-making in the tidal energy industry. Acadia Tidal Energy Institute (ATEI) has been working on several projects over the course of 2015 including the Nova Scotia Tidal Energy Mapping Tool which is an interactive web map displaying tidal energy related spatial data from existing, ongoing and future research projects. ATEI is also examining community engagement strategies for tidal energy development, conducting work on advancing acoustic environmental sensors and software for fish and marine mammal detection around turbines, and gathering insights on investment in the tidal energy sector

Although the marine renewable energy sector in other areas of the country does not have the same advantage of strong policy support mechanisms that are present in Nova Scotia, a number of the association’s members on the west coast are making progress through partnerships and a focus on remote community applications:

- New Energy has successfully engaged with Aboriginal Affairs and Northern Development Canada (AANDC) to create a project in a First Nations community, which will entail the first deployment



of New Energy's second generation 25 kW unit. The New Energy-led Canoe Pass Tidal Energy Project has also seen construction of various civil works.

- Mavi Innovations is working to integrate its Mi1 turbine along with batteries into an existing diesel grid in 2016 to power a remote lodge in BC. This is an important project for assessing the feasibility of using tidal power to offset the use of diesel for coastal off-grid communities.
- Waterwall Turbine is planning to test a full size demonstration turbine in the Fraser River before its deployment at the Dent Island test site. Design and construction of components for the associated

Wave Energy

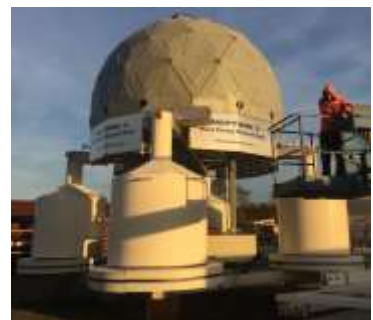
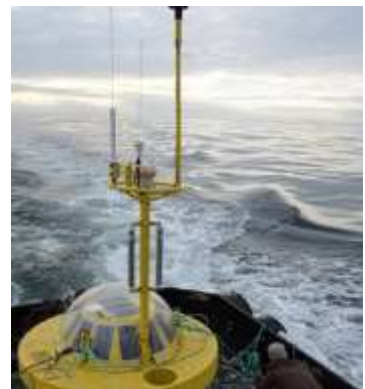
Wave energy continues to be a focus on the west coast, with member companies and the West Coast Wave Initiative (WCWI) out of the University of Victoria's Institute for Integrated Energy Systems (IESVic) pursuing various research and technology development activities.

WCWI maintains and operates four offshore wave measurement buoys to collect wave, wind and current data. It has been conducting various resource assessment, technology modeling, and grid integration activities that will help support future wave energy development off the coast of BC. In collaboration with Cascadia Coast Research, WCWI has also been working on hind-cast and forecast models. Some of WCWI's work has also included assessment of wave energy use by remote communities – WCWI is quantifying wave energy integration costs, fuel reductions, and operation impacts for a representative BC remote community.

Wave energy device members are also making strides with new partnerships and ventures both domestically and internationally.

- Grey Island Energy based in Newfoundland opened an office in Scotland to focus on international opportunities.
- Mermaid Power Corporation is making progress with its Neptune wave energy converter (WEC), with Neptune 3 to be used for wave energy data gathering and Neptune 4 expected to be deployed on the west coast of Vancouver Island in 2016.

Activity at WCWI



Neptune 3, Mermaid Power Corporation



- Seawood Designs' point absorber wave energy device, Surfpower, has undergone an optimization program by WCWI, designed to evaluate a larger number of system configurations to realize the lowest capital cost/annual kWh for a 100 unit array.
- Accumulated Ocean Energy Inc. (AOE) has partnered with T'Sou-ke Economic Development Limited, to establish the T'Sou-ke Ocean Energy Limited Partnership (TOE LP) which is aimed at pursuing business opportunities located in the traditional territory of T'Sou-ke Nation. The first of the projects proposed by the newly formed TOE LP will be the installation of a test system off the shores of the T'Sou-ke traditional territory.

River Energy

River energy activity is progressing, with the majority of testing and research occurring at the Canadian Hydrokinetic Turbine Test Centre (CHTTC) in Manitoba. The CHTTC plays an important role in the testing of river current turbines and supporting research on effects of turbines on the environment and vice versa. Since 2013, CHTTC has carried out over ten deployments with several device developers including Mavi Innovations, New Energy Corporation, Jupiter Hydro, Clean Current Power Systems, and GEM Holdings.

To support the future development of river current projects, CHTTC has successfully finalized an instrumentation platform, started developing a low cost velocity device for long-term marine resource assessment, and performed fieldwork on the Winnipeg River to validate its satellite resources assessment for river current sites.



Mavi Innovations Mi1 testing at CHTTC



Jupiter Hydro phase 1 and phase 2 prototype designs tested at CHTTC



Enabling Policies and Activities

Over the course of 2015, Nova Scotia has continued to implement aspects of its Marine Renewable Energy Strategy to support the advancement of the sector. The combination of new marine renewable energy legislation and approval of a power purchase agreement for feed-in tariffs (FITs) are helping to ensure that projects in the Bay of Fundy succeed and spur innovation and benefits for Canada. Enabling policies and activities for marine renewable energy include:

Marine Renewable Energy Legislation: In April, the Government of Nova Scotia introduced its *Marine Renewable Energy Act*. The Act governs the development of in-stream tidal, tidal range, waves, and offshore wind. It applies to two key areas of priority in the province – the Bay of Fundy and the Bras d'Or Lakes. Within these priority areas, smaller areas, called *Marine Renewable Electricity Areas (MREAs)*, will be designated for project development. The legislation also establishes a licensing and permitting system that will help create predictability and a pathway to market for industry.

Power Purchase Agreement (PPA) for Developmental FIT: Nova Scotia's Utility and Review Board (UARB) have approved a standard power purchase agreement for developmental tidal energy array projects in the Bay of Fundy. Feed-in tariff (FIT) rates range from \$0.375 to \$0.575 per kWh. The rate granted to a developer is dependent on the number of devices and term of development plans.

The Value Proposition: Nova Scotia's Offshore Energy Research Association (OERA) commissioned a study, "Value Proposition for Tidal Energy Development in Nova Scotia, Atlantic Canada and Canada" to determine the potential of building a tidal industry in Canada. The study was conducted by Gardner Pinfold and Acadia Tidal Energy Institute and examines the economic potential that could be realized over a 25 year period to 2040. It found that the new industry could contribute up to \$1.7 billion to Nova Scotia's gross domestic product (GDP), create up to 22,000 full time positions and generate as much as \$815 million in labour income. This opportunity is significant as there will be spill-over effects in the Atlantic region and elsewhere in Canada.

British Columbia-Nova Scotia MOU: The provinces of BC and Nova Scotia renewed their partnership to advance the marine renewable energy industry. A memorandum of understanding was signed by both provinces, committing to partnering on research and technology development and sharing information and best practices in regulation and permitting.

Canada's Growing Role in the International Market – International Collaboration

Canada has been progressively establishing itself as one of the leaders in the global marine renewable energy market and association members continue to pursue international opportunities and partnerships.

To further activity under the *Canada-United Kingdom Joint Declaration*, a memorandum of understanding between Nova Scotia, the Offshore Energy Research Association (OERA), and the United



Kingdom's Technology Strategy Board (TSB) was signed in 2014 to encourage joint research to develop new and innovative technology for high-flow tidal environments.

Under this MOU, the OERA and TSB launched a call for collaborative R&D projects focused on advancing environmental monitoring, sensing, and instrumentation. The call resulted in two projects being awarded, totaling \$1.4 million:

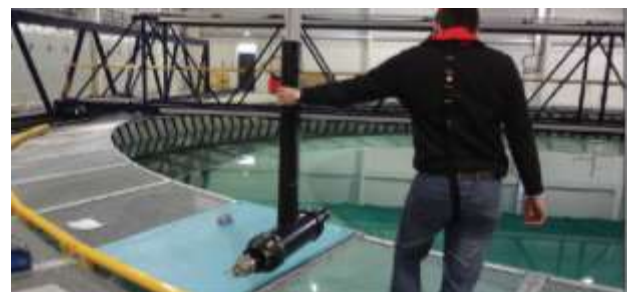
- *Emera, OpenHydro, Ocean Sonics, Acadia University + Tritech, Sea Mammal Research Unit (SMRU) and SMRU Canada:* Project will deliver an innovative system using both passive and active acoustic sensor technologies to improve 'real-time' tracking of fish and mammals at tidal sites in the Bay of Fundy.
- *Rockland Scientific, Dalhousie University, Black Rock Tidal + FloWave TT, European Marine Energy Centre (EMEC), and Ocean Array Systems:* Development of a new sensor system to measure the impact of turbulence on tidal devices. Project results will be used to improve turbine designs and operation performance, as well as assessment of installation sites.

Other member companies are also pursuing international partnerships and collaborations:

- New Energy has continued to work in Asia, doing follow-up work with its second generation unit initially installed last year in Nepal. Two additional second generation 5kw units have recently been installed in Myanmar (September/October 2015).
- Instream Energy Systems and the UK's IT Power Consulting were awarded the EUREKA label for their collaboration on a floating tidal turbine platform. The platform will allow Instream's vertical axis turbine to be deployed in an array in coastal marine applications. Instream has also received approval by the US Bureau of Reclamation to extend its lease at the Roza Canal site in Washington. Instream plans on adding additional turbines as well as connecting to the grid.
- Axyx Technologies has been accomplishing a number of activities internationally, including deployment of two dual-LiDAR WindSentinel floating LiDAR systems, utilizing the Offshore Renewable Energy (ORE) Catapult's infrastructure.



Instream Energy Systems



Rockland Scientific working at Scotland's FloWave

Our Work: Advancing the Canadian Marine Renewable Energy Sector



Marine Renewables Canada is leading a number of initiatives that are aimed at supporting our membership's needs, growing the sector, and securing Canada's place in the growing global marine renewable energy market.

Supporting Technical Advancement through Standards Development

Marine Renewables Canada has been administering the TC114 International Electrotechnical Commission (IEC) Canadian sub-committee, with support from ecoEII. The sub-committee has been examining existing standards and developed new work packages necessary to support technology advancement in Canada. In 2015 there were two calls for research proposals to inform standards development. The second call for research proposals was a result of an opportunity to submit a proposal to NRCan for additional funding for research projects. The successful projects from both these calls were:

- *Simulation of Long-term Wave Energy Converter Power Performance*
- *River energy converter environmental condition and load verification*
- *Tidal and river energy converter debris impact load and cable snag risk quantification*
- *Quantifying extractable power in a stretch of river using an array of MHK turbines*
- *Guideline for Reliability Assessment of Marine Energy Conversion Systems (MECs) and Design*
- *Parameters for River Current Energy Conversion Systems (RECs) for Different Safety Levels*
- *Characterization of Low-Frequency Tidal Turbine Noise*

Supply Chain Engagement & Development

A key part of Marine Renewables Canada's work is to facilitate supply chain development and industry growth. As the industry is in its early stages, the opportunity for participation in the supply chain is most immediate within the advancing tidal energy developments around the Bay of Fundy—industrial -scale projects at the Fundy Ocean Research Center for Energy (FORCE) and community based projects led by Fundy Tidal Inc. A major part of developing these projects and developing Canadian expertise and advantage will be the involvement of local suppliers and services. There are increasing opportunities for firms and organizations to develop new innovations, solutions, and build expertise that could result in export potential through these early tidal projects.

To capture the opportunity presented by these projects, Marine Renewables Canada has been working with the Atlantic Canada Opportunities Agency (ACOA), Nova Scotia Department of Energy, Cumberland Energy Authority, and Digby Development Agency to lead the *Marine Renewable Energy Supplier Engagement and Development Initiative*. The aim of this work was to identify developers' project requirements, identify and assess capabilities to meet those needs in Atlantic Canada/Canada and engage those capabilities through workshops and other events. To accomplish these objectives, the association led a series of activities to facilitate supply chain development and local benefits:



- Webinars:
 - *Building the marine renewable energy supply chain – an introduction to local and global opportunities* (presentations from Nova Scotia Department of Energy and Marine Renewables Canada) (May 13)
 - *Pursuing innovation for the marine renewable energy industry – Funding opportunities* (presentations from ACOA, IRAP, OERA, and SDTC) (July 7)

- Supplier-Industry Workshops:
 - *Seabed Characterization for High-flow Tidal Sites: Geotechnical technologies, methods, and solutions* – Halifax (May 26)

- Community Engagement Sessions:
 - Community session in Digby as part of the Digby Port Days and another community session in Parrsboro as part of the Cumberland Energy Symposium (presentations from Marine Renewables Canada, Nova Scotia Department of Energy, Digby, OpenHydro, Black Rock Tidal, and Fundy Tidal Inc.)

- Capabilities identification and assessment:
 - The association has worked with project developers to identify critical development issues, understand supply chain requirements, and build knowledge of where Atlantic Canada/Canada has strengths and can be competitive.

Marine Renewables Canada also continues its efforts to identify and engage business with capabilities and expertise that is required by the growing marine renewable energy sector. To accomplish this, the association has continued to build and grow relationships with key offshore, marine, and energy organization to strengthen cross-sector collaboration.

The other aspect of this work has been to directly reach out to potential supply chain members in Canada. Some of activities to achieve this goal over 2015 include:

- Tradeshow participation at NOIA, St. John's Newfoundland, June 2015
- Tradeshow participation at the Vancouver Island Sustainable Technology Association (VISTA)
- New Brunswick Information Session (*see page 14 for more information*)



Expanding the Opportunity – Engagement and Outreach

While the activities in Nova Scotia make the province a clear leader in the global industry and an incubator for Canada's growing industry, there are many opportunities across Canada to be seized and nurtured. Marine Renewables Canada is continuing to help members pursue opportunities on the west coast and is also working with other renewable energy associations to ensure renewable electricity production as a whole, accelerates in Canada.

Pacific Coast Engagement: The association has been working to push for more supportive policy from BC government. The Pacific Working Group under Marine Renewables Canada has carried out a number of strategic activities over 2015 to support future development of the sector in the region including:

- A formal presentation and submission was made to the BC Finance committee as part of the budget consultation. This may have influenced the reactivation of the Innovative Clean Energy Fund, but it did not result in new resources for the marine renewable energy sector.
- Marine Renewables Canada developed a discussion paper for British Columbia's Climate Leadership Team and provided a submission and survey input as part of the initiative's formal consultation. The submissions will be part of the public record.
- The association is working on developing an alliance with the new BC Marine Industries Association to pursue common goals and initiatives for the marine renewables and broader marine sectors.
- Marine Renewables Canada booth participated in the Vancouver Island Sustainable Technology Association (VISTA) conference in June 2015. This event helped to profile the association's work and provided a forum to network in search of synergistic initiatives and opportunities.

Joining Forces to Support Renewable Electricity Development in Canada: Marine Renewables Canada has joined other national renewable energy associations – CanWEA, CanSIA, and the Canadian Hydropower Association – to form the Canadian Council on Renewable Electricity (CanCORE). CanCORE was launched in May 2015 and aims to establish a unified approach towards supporting renewable electricity development in Canada.

CanCORE will work to educate and engage Canadians about the opportunity to expand the production and use of renewable electricity across the country. It aims to build public support for increased development of Canada's abundant renewable electricity resources in order to further decarbonize North America's energy system.

Strengthening a foundation of academic research: The foundation for academic strategic research continues to be the universities of Victoria, Manitoba, Laval, Acadia and Dalhousie. While in the past the association has taken leadership approaches in fostering formal networking and collaboration aimed at



amplifying access to funding, has now been led by the universities. Their collective engagement, competency and capacity development continue to be promoted in all presentations by the association.

International Business Development: Marine Renewables Canada has continued to focus on identifying market opportunities for members, growing relationships with international organizations, and profiling Canada's strengths to the world market. To support these objectives, the association has participated in the following international conferences and events, providing information about the sector and presenting to international audiences:

- RenewableUK Wave & Tidal, Scotland, February 2015
- Thetis, France, 2015
- Hydrovision/OWET, USA, August 2015
- EWTEC, France, September 2015
- Scottish Renewables Marine Energy Conference, September 2015

The key message Marine Renewables Canada has been delivering in the international arena is that Canada, particularly Nova Scotia, is delivering a strategy that will contribute to the growth of the global tidal energy industry. Presentations at major events have underscored the alignment of resource opportunity, utility and government interest, electricity market drivers, international project developer engagement and recruitment of the leading technology suppliers as the unique basis for a path to industrial scale.

With support of DFATD's GOA program, Marine Renewables Canada was able to lead a mission and assist member companies in attending the European Wave & Tidal Exhibition & Conference (EWTEC) that took place in Nantes, France in February 2015. This mission included a Canada booth in the EWTEC exhibition with 12 organizations in total participating and represented.

Events

International Conference on Ocean Energy (ICOE): In November 2014, Marine Renewables Canada was the lead in hosting and organizing the 5th International Conference on Ocean Energy. Held in Halifax, Nova Scotia, this marked the first time ICOE was held outside of Europe, speaking to the leadership and strengths of Canada's industry. The conference was a huge success, attracting participants from over 25 countries, over 700 delegates, 121 exhibitors, and 220 presenters. The participant profile was comprised of utilities, tidal/wave/river energy device developers, multinational corporations, government, project developers, academia, and supply chain companies and service providers with marine, energy, hydro, offshore oil and gas, and/or ocean technology expertise.

Countries represented at ICOE included: Australia, Belgium, Bermuda, Canada, Chile, China, Denmark, Ireland, Finland, France, Gabon, Germany, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Singapore, South Africa, Spain, Sweden, United Kingdom, United States of America.



The conference comprised a full week of activities including three full days of speaker and poster presentations, a tradeshow and exhibition, site visits to the Fundy Ocean Research Center for Energy (FORCE) and Annapolis Tidal Power Station, Welcome Reception, Gala Dinner, and over ten side events hosted by various organizations.

ICOE 2014 also showcased a large Canadian presence, including a two story Canada Pavilion comprising of 38 companies and associations. Pavilion participants had broad representation including utilities, service providers, consultants, technology developers, ocean technology manufacturers, research associations, universities, as well as federal and provincial government.

To build on the success and momentum of ICOE 2014, Marine Renewables Canada is leading a mission to ICOE 2016, which will be hosted by RenewableUK and held in Edinburgh, Scotland in February 2016.

New Brunswick Marine Renewable Energy Engagement Event: The association hosted an information session in St. Andrews, New Brunswick that brought together government, community, academic, and industry stakeholders to discuss the opportunities and challenges of developing tidal power in the region.

Key players in the sector provided insights and updates including Nova Scotia Department of Energy, the Offshore Energy Research Association, FORCE, Marine Renewables Canada, Fundy Tidal Inc., OpenHydro, New Brunswick Department of Energy & Mines, and the New Brunswick Department of Natural Resources. The event was sponsored by the Port Saint John and attracted over 50 participants



Our Members

Acadia Tidal Institute www.tidalenergy.acadiau.ca

Aecon Atlantic Industrial Inc. www.aecon.com

Andritz Hydro Canada Inc. www.andritz.com/hydro

AOE Accumulated Ocean Energy Inc. www.aoecanada.ca

ASL Environmental www.aslenv.com

AXYS Technologies www.axystechnologies.com

BC Hydro www.bchydro.com

Black Rock Tidal Power www.blackrocktidalpower.com

Bluewater Energy Services www.bluewater.com

Bourque Industrial Ltd. www.bourqueindustrial.com

Broad Spectrum Consulting Ltd. www.broadspectrum.ca

Canadian Copper and Brass Development www.coppercanada.ca

Cascadia Coast Research Ltd. www.cascadiacoast.com

Charles Wood, Seawood Designs Inc.

Clean Current Power Systems www.cleancurrent.com

College of the North Atlantic – Burin Campus www.cna.nl.ca/Campus/BU

Cumberland Energy Authority www.cumberlandcounty.ns.ca/cumberland-energy-authority.html

Deborah Boone

DP Marine Energy Limited www.dpenergy.com

Dynamic Systems Analysis, Ltd. www.dsa-ltd.ca

Emera www.emera.com

Fundy Ocean Research Center for Energy (FORCE) www.fundyforce.ca

Fundy Tidal Inc. www.fundytidal.ca

Go With the Flow Technologies Inc. www.sifet.ca

Grey Island Energy www.greyislandenergy.com



Hatch www.hatch.ca

Hemmera www.hemmera.com

Horizon Maritime www.horizonmaritime.com

Igloo Innovations Inc. www.digitaligloo.net

Instream Energy Systems Corp. www.instreamenergy.com

International Marine Energy

Irving Transportation Ltd. www.jdirving.com

Jessica McIlroy

Jupiter Hydro Inc. www.jupiterhydro.com

Kayden Peters

Knight Piesold www.knightpiesold.com

Lengkeek Vessel Engineering Inc. www.lengkeek.ca

MacArtney Inc www.macartney.com

Maine Maritime Academy www.mainemaritime.edu

Manitoba Hydro www.hydro.mb.ca

Marine Institute of Memorial University www.mi.mun.ca/mi_international

Maritime Tidal Energy Corp. www.maritimetidal.com

Market Pursuits Inc. www.marketpursuits.com

Martin Leguizamon

Martin Tampier

Mavi Innovations www.mavi-innovations.ca

McInnes Cooper www.mcinnescooper.com

McKeil Marine www.mckeil.com

Mersen www.ep-ca.mersen.com

MilAero www.mil-aero.com



Minas Basin Pulp and Power www.minas.ns.ca

Mitchell Cahill

National Research Council www.nrc-cnrc.gc.ca

New Energy Corp www.newenergycorp.ca

Nova Scotia Department of Energy www.gov.ns.ca/energy

Ocean Renewable Power Company (ORPC) www.orpc.co

Offshore Energy Research Association (OERA) www.oera.ca

OpenHydro www.openhydro.com

Oregon Wave Energy Trust (OWET) www.oregonwave.org

Port Saint John www.sjport.com

R.J. MacIsaac Construction Ltd. www.rjmiconstruction.ca

Resolute Marine Energy Inc www.resolutemarine.com

Rockland Scientific International www.rocklandscientific.com

SCHOTTEL www.schottel.de

Sea Mammal Research Unit (SMRU) www.smru.st-and.ac.uk

SRM Projects www.srmprojects.ca

Stanley Smith

Stantec www.stantec.com

Strum Consulting www.strum.com

Tidal Lagoon Power www.tidallagoonpower.com

Tony Tung

UVic IESVic www.iesvic.uvic.ca

Voith Hydro www.voith.com

Yves Savoie

MARINE RENEWABLES CANADA SOCIETY

FINANCIAL STATEMENTS

December 31, 2014



Church Pickard
Chartered Accountants

INDEPENDENT AUDITORS' REPORT

To the Members
Marine Renewables Canada Society

Report on Financial Statements

We have audited the accompanying financial statements of Marine Renewables Canada Society, which comprise the statement of financial position as at December 31, 2014 and the statements of operations and cash flows for the year then ended and a summary of significant accounting policies and other explanatory information

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.

(1)

25 Cavan Street, Nanaimo, BC V9R 2T9
Tel (250) 754-6396 Toll Free 1-866-754-6396
Fax (250) 754-8177 Email. mail@churchpickard.com
www.churchpickard.com

INDEPENDENT AUDITORS' REPORT - cont.

Auditor's Responsibility - cont.

An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the financial statements present fairly, in all material respects, the financial position as at December 31, 2014, and its financial performance and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.



CHURCH PICKARD
Chartered Accountants

Nanaimo, B.C.
April 30, 2015

MARINE RENEWABLES CANADA SOCIETY

STATEMENT OF FINANCIAL POSITION

As at December 31, 2014

	<u>2014</u>	<u>2013</u>
Assets		
Current		
Cash	\$ 89,358	\$ 8,353
Accounts receivable - Note 3	277,765	37,484
Work in progress - Note 8	16,838	95,568
Prepaid expenses - Note 6	<u>3,016</u>	<u>51,494</u>
	386,977	192,899
Long-term accounts receivable - Note 4	<u>58,352</u>	<u>19,873</u>
	<u>\$ 445,329</u>	<u>\$ 212,772</u>
Liabilities		
Current		
Accounts payable and accrued liabilities	\$ 184,590	\$ 132,046
Deferred revenue	<u>-</u>	<u>38,033</u>
	184,590	170,079
Long-term accounts payable - Note 4	<u>36,342</u>	<u>12,117</u>
	220,932	182,196
Net Assets		
Net assets	<u>224,397</u>	<u>30,576</u>
	<u>\$ 445,329</u>	<u>\$ 212,772</u>

Approved:

MARINE RENEWABLES CANADA SOCIETY

STATEMENT OF OPERATIONS

For the year ended **December 31, 2014**

	2014	2013
Revenues		
Events	\$ 712,993	\$ 97,465
Government funding	665,592	275,005
Membership income	55,078	52,814
Other revenue	7,275	4,583
Donation from OREG	-	108,647
	<u>1,440,938</u>	<u>538,514</u>
Expenses		
Event expenses	532,469	52,650
Contract fees - travel, meals, and accommodation	367,303	165,097
Wages and directors' fees	224,133	198,372
Advertising and promotion	31,987	11,105
Non-claimable GST/HST	19,836	10,685
Professional fees	19,721	11,824
Interest and bank charges	16,732	2,770
Travel, meals, and accommodation	16,687	40,176
Rent	7,200	4,800
Bad debts	5,625	-
Insurance	2,882	1,129
Office supplies	2,542	3,200
	<u>1,247,117</u>	<u>501,808</u>
Excess of revenues over expenses	193,821	36,706
Net assets beginning of the year	<u>30,576</u>	<u>(6,130)</u>
Net assets, end of the year	<u>\$ 224,397</u>	<u>\$ 30,576</u>

MARINE RENEWABLES CANADA SOCIETY

STATEMENT OF CASH FLOWS

For the year ended **December 31, 2014**

	<u>2014</u>	<u>2013</u>
Cash provided (used):		
Operating activities		
Excess of revenues over expenses	\$ 193,821	\$ 36,706
Changes in non-cash operating accounts		
Increase in accounts receivable	(240,281)	(36,948)
Decrease (increase) in work in progress	78,730	(49,377)
Decrease (increase) in prepaid expenses	48,478	(51,494)
Increase in accounts payable and accrued liabilities	52,544	79,189
(Decrease) increase in deferred revenue	(38,033)	38,033
Increase in long-term accounts receivable	(38,479)	(19,873)
Increase in long-term accounts payable	<u>24,225</u>	<u>12,117</u>
	81,005	8,353
Financing activities		
Repayments to related party	<u>-</u>	<u>(5)</u>
Increase in cash	81,005	8,348
Cash, beginning of the year	<u>8,353</u>	<u>5</u>
Cash, end of the year	<u>\$ 89,358</u>	<u>\$ 8,353</u>

MARINE RENEWABLES CANADA SOCIETY

NOTES TO THE FINANCIAL STATEMENTS

For the year ended **December 31, 2014**

1. Status and nature of activities

Marine Renewables Canada Society was incorporated under the *Canada Not-for-Profit Corporations Act* on January 31, 2012. The mandate of the society is to align industry, academia, and government to ensure that Canada is a leader in providing ocean energy solutions to a world market.

2. Significant accounting policies

The financial statements have been prepared in accordance with Canadian accounting standards for not-for-profit organizations.

a) Financial instruments

The society initially measures its financial assets and liabilities at fair value.

Financial assets include cash, accounts receivable, and long-term accounts receivable.

Financial liabilities include accounts payable and accrued liabilities and long-term payables.

Financial assets measured at cost are tested for impairment when there are indicators of impairment. The amount of the write-down is recognized in the statement of operations. Any previously recognized impairment loss may be reversed to the extent of the improvement, provided it is no greater than the amount that would have been reported at the date of the reversal had the impairment not been recognized previously. The amount of the reversal is recognized in the statement of operations.

The society recognizes its transaction costs in the statement of operations in the period incurred. However, financial instruments that will not be subsequently measured at fair value are adjusted by the transaction costs that are directly attributable to their origination, issuance, or assumption.

b) Revenue recognition

The society follows the deferral method of accounting for contributions. Membership income is recognized in the period for which the memberships pertain, event income is recognized based on the date of the event, and donation revenue is recognized when received.

c) In-kind services

A number of people and organizations contribute numerous hours each year to assist the society in carrying out its operations. Due to the difficulty of determining their fair value, contributed services are not recognized in the financial statements.

MARINE RENEWABLES CANADA SOCIETY

NOTES TO THE FINANCIAL STATEMENTS

For the year ended **December 31, 2014**

2. **Significant accounting policies - cont.**

d) Use of estimates

The preparation of the financial statements of the society in accordance with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclose the contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenditure during the reporting period. Significant areas requiring the use of management estimates relate to the determination of the collectibility of accounts receivable. Actual results could differ from those estimates.

3. **Accounts receivable**

The accounts receivable balance includes \$8,586 in GST/HST input tax credits currently under appeal with Canada Revenue Agency. Should the entity lose the appeal this amount will not be collectable.

4. **Funding contracts**

The society is receiving current and future funding from two funding agreements for a maximum amount of \$1,088,925. One of the contracts stipulates a 10% holdback on claims. In order to match the cash flows from the government-funded project, the society has entered into agreements with the vendors associated with the project to hold back 10% of the funds owed until the completion of the contract on March 31, 2016.

5. **Contractual commitment**

The entity is committed under several agreements for funding other entities, for each of the next two years and in total, are as follows:

2014	\$ 37,300
2015	<u>4,100</u>
	<u>\$ 41,400</u>

MARINE RENEWABLES CANADA SOCIETY

NOTES TO THE FINANCIAL STATEMENTS

For the year ended **December 31, 2014**

6. Prepaid expenses

The society has prepaid expenses including the following:

	2014	2013
Insurance and lease	\$ 3,016	\$ 3,119
Events and conferences	<u>-</u>	<u>48,375</u>
	<u>\$ 3,016</u>	<u>\$ 51,494</u>

7. Lease commitments

The company is committed under a lease agreement for the rental of premises which, for the next year is \$3,000.

8. Work in progress

Work in progress represents work performed in the period that has not been invoiced.

9. Government remittances

The society has the following amounts owing/receivable for government remittances at December 31, 2014:

Payroll source deductions	\$ 1,132	receivable
GST	\$ 11,678	receivable
WCB - Nova Scotia	\$ 30	payable

MARINE RENEWABLES CANADA SOCIETY

NOTES TO THE FINANCIAL STATEMENTS

For the year ended **December 31, 2014**

10. Financial instruments

The significant financial risks to which the company is exposed are credit risk and currency risk.

a) Credit risk

Credit risk arises from the potential that a counterparty will fail to perform its obligations. The society is exposed to credit risk primarily in relation to its accounts receivable. However, the society's operation has a significant number of diverse customers and funding sources which reduces the concentration of credit risk.

b) Currency risk

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The majority of the society's assets, liabilities, revenue, and expenses are denominated in Canadian dollars. However, some transactions entered into by the society are in foreign currency and are exposed to foreign currency fluctuations.

11. Comparative figures

Certain of the comparative figures have been reclassified to conform with the current year's presentation.

Marine Renewables Canada Society
PO Box 34066
RPO Scotia Square
Halifax, NS B3J 3S1

April 30, 2015

Church Pickard
25 Cavan Street
Nanaimo, BC V9R 2T9

Dear Sir or Madam:

This representation letter is provided in connection with your audit of the financial statements of Marine Renewables Canada Society for the year ended December 31, 2014 for the purpose of expressing an opinion as to whether the financial statements are presented fairly, in all material respects, in accordance with Canadian Accounting Standards for Not-for-Profit Organizations. We confirm that (to the best of our knowledge and belief, having made such inquiries as we considered necessary for the purpose of appropriately informing ourselves):

Financial Statements

- We have fulfilled our responsibilities, as set out in the terms of the audit engagement dated January 19, 2015 for the preparation of the financial statements in accordance with Canadian Accounting Standards for Not-for-Profit Organizations; in particular, the financial statements are fairly presented in accordance therewith.
- Significant assumptions used by us in making accounting estimates, including those measured at fair value, are reasonable.
- All events subsequent to the date of the financial statements and for which Canadian Accounting Standards for Not-for-Profit Organizations require adjustment or disclosure have been adjusted or disclosed.
- The effects of uncorrected misstatements are immaterial, both individually and in the aggregate, to the financial statements as a whole. A list of the uncorrected misstatements is attached to the representation letter.

Information Provided

- We have provided you with:
 - access to all information of which we are aware that is relevant to the preparation of the financial statements such as records, documentation and other matters;
 - additional information that you have requested from us for the purpose of the audit; and
 - unrestricted access to persons within the entity from whom you determined it necessary to obtain audit evidence.

All transactions have been recorded in the accounting records and are reflected in the financial statements.

- We have disclosed to you the results of our assessment of the risk that the financial statements may be materially misstated as a result of fraud.
- We have disclosed to you all information in relation to fraud or suspected fraud that we are aware of and that affects the entity and involves:
 - management;
 - employees who have significant roles in internal control; or
 - others where the fraud could have a material effect on the financial statements.
- We have disclosed to you all information in relation to allegations of fraud, or suspected fraud, affecting the entity's financial statements communicated by employees, former employees, analysts, regulators or others.
- We have disclosed to you all known instances of non-compliance or suspected non-compliance with laws and regulations whose effects should be considered when preparing financial statements.
- We have disclosed to you the identity of the entity's related parties and all the related-party relationships and transactions of which we are aware.

Yours truly,

Executive Director

Title: _____